Difference between instrumental and personal observations of sunshine.

Stations.	Apparatus.	Total possible duration for the whole month.	Personal estimated area of clear sky.	Instrumental record of sunshine.			
				Photographic.	Difference.	Thermometric.	Difference.
		Hrs.	%	%	%	%	%
Galveston, Tex	P.	355.9	52	57	+ 5	....	.....
New Orleans, La	T.	354.9	37	.....	.....	39	+ 2
Savannah, Ga	P.	352.8	58	63	+ 5	....	.....
Vicksburg, Miss	T.	352.8	58	.....	.....	61	+ 3
Phœnix, Ariz	P.	351.5	73	81	+ 8	....	.....
San Diego, Cal	P.	351.5	69	69	0	....	.....
Atlanta, Ga	T.	350.9	58	.....	.....	55	— 3
Los Angeles, Cal	P.	350.9	68	77	+ 9	....	.....
Wilmington, N. C	T.	350.9	57	.....	.....	65	+ 8
Little Rock, Ark	T.	350.1	49	.....	.....	69	+20
Santa Fe, N. Mex	P.	348.9	46	64	+18	....	.....
Fresno, Cal	T.	347.9	75	.....	.....	84	+ 9
Dodge City, Kans	P.	347.3	64	72	+ 8	....	.....
Louisville, Ky	T.	347.3	64	.....	.....	74	+10
San Francisco, Cal	T.	347.3	66	.....	.....	69	+ 3
Baltimore, Md	T.	346.0	54	.....	.....	44	—10
Cincinnati, Ohio	T.	346.0	62	.....	.....	71	+ 9
Kansas City, Mo	P.	346.0	69	74	+ 5	....	.....
St. Louis, Mo	T.	346.0	71	.....	.....	79	+ 8
Washington, D. C	P.	346.0	54	57	+ 3	....	.....
Columbus, Ohio	T.	344.9	42	.....	.....	54	+12
Denver, Colo	P.	344.9	59	70	+11	....	.....
Philadelphia, Pa	T.	344.9	39	.....	.....	47	+ 8
Cheyenne, Wyo	P.	343.9	55	78	+23	....	.....
Eureka, Cal	P.	343.9	46	45	— 1	....	.....
New York, N. Y.*	T.	343.9	35	.....	.....	34	— 1
Omaha, Nebr	P.	343.9	56	65	+ 9	....	.....
Salt Lake City, Utah	P.	343.9	64	76	+12	....	.....
Binghamton, N. Y	T.	342.5	36	.....	.....	25	— 1
Boston, Mass	T.	342.5	31	.....	.....	38	+ 7
Chicago, Ill	T.	342.5	55	.....	.....	63	+ 5
Cleveland, Ohio	P.	342.5	52	.....	.....	....	.....
Des Moines, Iowa	T.	342.5	68	.....	.....	76	+ 8
Detroit, Mich	T.	342.5	58	.....	.....	61	+ 3
Dubuque, Iowa†	T.	342.5	55	.....	.....	53	— 2
Buffalo, N. Y	T.	341.8	35	.....	.....	44	+ 9
Rochester, N. Y	T.	341.8	33	.....	.....	30	— 3
Northfield, Vt	P.	340.5	26	36	+10	....	.....
Portland, Me	T.	340.5	25	.....	.....	33	+ 8
Eastport, Me	P.	339.8	28	35	+ 7	....	.....
Minneapolis, Minn	T.	339.8	....	.....	.....	61	.....
Portland, Oreg.*	T.	338.5	57	.....	.....	59	+ 2
	P.	338.5	57	56	— 1	....	.....
Bismarck, N. Dak	P.	336.7	60	59	— 1	....	.....
Helena, Mont	P.	336.7	59	67	+ 8	....	.....

*The personal estimate is 36 for 31 days, but the instrumental record is for 27 days, for which the total possible was 301.8.

†The personal estimate is 56 for 31 days, but the instrumental record is for 26 days, for which the total possible was 284.3.

ATMOSPHERIC ELECTRICITY.

Numerical statistics relative to auroras and thunderstorms are given in Table X, which shows the number of stations from which meteorological reports were received, and the number of such stations reporting thunderstorms (T) and auroras (A) in each State and on each day of the month, respectively.

Thunderstorms.—The dates on which reports of thunderstorms for the whole country were most numerous were: 27th, 44; 28th, 114; 29th, 83.

Thunderstorm reports were most numerous in: Iowa and Missouri, 43; Louisiana, 46; Texas, 49.

Thunderstorms were most frequent in: Louisiana and Mississippi, 10 days: Arizona, 11; Missouri, 13; New Mexico, 17; Texas, 15.

Auroras.—The evenings on which bright moonlight must have interfered with observations of faint auroras are assumed to be the four preceding and following the date of full moon, viz, from the 16th to the 24th, inclusive. On the remaining twenty-two days of this month 101 reports were received, or an average of about 5 per day. The dates on which the number of reports especially exceeded this average were: 8th, 12; 9th, 20; 10th, 27; 11th, 9; 12th, 10.

Auroras were reported most frequently in: Illinois, Maine, New Hampshire, and North Dakota, 5 days; Massachusetts, 7; Montana, 6.

The number of reports was a large percentage of the number of observers in: Maine, 100; Montana, 32; New Hampshire, 48; North Dakota, 36 per cent.

CANADIAN REPORTS.

Thunderstorms were reported as follows: Grand Manan, 18th; Parry Sound, 29th; Swift Current, 5th; Banff, 2d.

Auroras were reported as follows: Sydney, 9th; Halifax, 9th; Grand Manan, 10th; Yarmouth, 9th; St. Andrews, 10th; Charlottetown, 12th; Father Point, 4th, 11th, 12th; Quebec, 9th to 12th; Port Arthur, 1st; Winnipeg, 8th, 10th, 12th to 15th, 29th; Minnedosa, 9th, 10th, 11th, 15th; Qu'Appelle, 13th, 14th, 15th; Medicine Hat, 8th, 9th, 12th, 13th, 29th; Calgary, 12th 13th, 15th; Prince Albert, 12th; Battleford, 11th, 12th.

INLAND NAVIGATION.

The *extreme and average stages of water* in the rivers for the current month are given in Table VIII. At no station, with a single exception, has the river approached the danger line. With the exception of the Ohio and Potomac there has been little range in the heights of rivers; these have remained steadily at a low stage. At the end of the previous month the Monongahela and other rivers of West Virginia were moderately full, and these waters caused a rise in the Ohio during the early part of October, the crest being reached at Cincinnati on the 6th and at Cairo on the 12th. The following rise in the Mississippi below Cairo was slight. The rises were 14.9 feet at Cincinnati, 7.9 at Cairo, and 5.3 at Memphis.

The breaking of a dam on the Shenandoah River caused a flood wave to descend this river and the Potomac. The water at Harpers Ferry, W. Va., reached a stage of 31 feet or 17 feet above the danger line. The wave was of short length and rapidly flattened as it descended, so that at Washington, D. C., the danger line was not reached.

CLIMATE AND CROP SERVICE.

By JAMES BERRY, Chief of Climate and Crop Service Division.

The following extracts relating to the general weather conditions in the several States and Territories are taken from the monthly reports of the respective services.

Snowfall and rainfall are expressed in inches.

Alabama.—The mean temperature was 63.2°, or 1.6° below normal; the highest was 98°, at Mount Willing on the 4th, and the lowest, 26°, at Oneonto on the 19th. The average precipitation was 2.27, or 0.20 below normal; the greatest monthly amount, 5.95, occurred at Alco, and the least, 0.90, at Rock Mills. The drought over the central and northern portions of the State, which began during the second decade of July, and which was only partially relieved by showers during the latter part of September and early part of October, was effectually broken by very general rains during the third decade. All field crops were practically gathered before this rainy season, which was badly needed to furnish water for stock, and which started up many cotton gins and mills which had for some time been idle on account of scarcity of water. There were no severe storms in this section during the month, which as a whole was a favorable one for the farmers, who have been able to do some fall plowing and seeding.

Arizona.—The mean temperature was 66.2°, or 1.1° above normal; the highest was 117°, at Parker on the 3d, and the lowest, 27°, at Fort Apache on the 31st. The average precipitation was 3.02, or 2.33 above normal; the greatest monthly amount, 8,80, occurred at Benson; no rain fell at Texas Hill.